General

Guideline Title

Practice guidelines for the prevention, detection, and management of respiratory depression associated with neuraxial opioid administration: an updated report by the American Society of Anesthesiologists Task Force on Neuraxial Opioids and the American Society of Regional Anesthesia and Pain Medicine.

Bibliographic Source(s)

Practice guidelines for the prevention, detection, and management of respiratory depression associated with neuraxial opioid administration: an updated report by the American Society of Anesthesiologists Task Force on Neuraxial Opioids and the American Society of Regional Anesthesia and Pain Medicine. Anesthesiology. 2016 Mar;124(3):535-52. [84 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American Society of Anesthesiologists Task Force on Neuraxial Opioids, Horlocker TT, Burton AW, Connis RT, Hughes SC, Nickinovich DG, Palmer CM, Pollock JE, Rathmell JP, Rosenquist RW, Swisher JL, Wu CL. Practice guidelines for the prevention, detection, and management of respiratory depression associated with neuraxial opioid administration. An updated report by the American Society of Anesthesiologists Task Force on Neuraxial Opioids. Anesthesiology. 2009 Feb;110(2):218-30. [159 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- March 22, 2016 – Opioid pain medicines : The U.S. Food and Drug Administration (FDA) is warning about several safety issues with the entire class of opioid pain medicines. These safety risks are potentially harmful interactions with numerous other medications, problems with the adrenal glands, and decreased sex hormone levels. They are requiring changes to the labels of all opioid drugs to warn about these risks.

Recommendations

Major Recommendations

Identification of Patients at Increased Risk of Respiratory Depression

- Conduct a focused history and physical examination before administering neuraxial opioids.
    - Direct particular attention toward signs, symptoms, or a history of sleep apnea, co-existing diseases or conditions (e.g., diabetes, obesity), current medications (including preoperative opioids), and adverse effects after opioid administration.
    - A physical examination should include, but is not limited to, baseline vital signs, airway, heart, lung, and cognitive function.

Prevention of Respiratory Depression after Neuraxial Opioid Administration

Noninvasive Positive Pressure Ventilation

- Encourage patients with a history of sleep apnea treated with noninvasive positive airway pressure to bring their own equipment to the hospital.

Route of Administration

- Single-injection neuraxial opioids may be safely used in place of parenteral opioids without altering the risk of respiratory depression or hypoxemia.
    - Single-injection neuraxial fentanyl or sufentanil may be safe alternatives to single-injection neuraxial morphine.
- When clinically suitable, extended-release epidural morphine may be used in place of intravenous or conventional (i.e., immediate-release) epidural morphine, although extended monitoring may be required.
- Continuous epidural opioids are preferred to parenteral opioids for anesthesia and analgesia for reducing the risk of respiratory depression.

Type of Drug

- When clinically suitable, appropriate doses of continuous epidural infusion of fentanyl or sufentanil may be used in place of continuous infusion of morphine or hydromorphone without increasing the risk of respiratory depression.
- Given the unique pharmacokinetic effect of the various neuraxially administered opioids, match the appropriate duration of monitoring with the drug.
- Based on the duration of action of hydrophilic opioids, do not administer neuraxial morphine or hydromorphone to outpatient surgical patients.

Dose Selection

- Administer the lowest efficacious dose of neuraxial opioids to minimize the risk of respiratory depression.

Drug Combinations

- Administer parenteral opioids or hypnotics cautiously in the presence of neuraxial opioids.
- The concomitant administration of neuraxial opioids and parenteral opioids, sedatives, hypnotics, or magnesium requires increased monitoring (e.g., intensity, duration, or additional methods of monitoring).

Monitoring for Respiratory Depression

- Monitor all patients receiving neuraxial opioids for adequacy of ventilation (e.g., respiratory rate, depth of respiration [assessed without disturbing a sleeping patient]), oxygenation (e.g., pulse oximetry when appropriate), and level of consciousness.*
- Increased monitoring (e.g., intensity, duration, or additional methods of monitoring) may be warranted for patients at increased risk of respiratory depression (e.g., unstable medical condition, obesity, obstructive sleep apnea,† concomitant administration of opioid analgesics or hypnotics by other routes, extremes of age).

*In cases with other concerning signs, it is acceptable to awaken a sleeping patient to assess level of consciousness.

†"Hospitalized patients who are at an increased risk of respiratory compromise from obstructive sleep apnea (OSA) should have continuous pulse oximetry monitoring after discharge from the recovery room. Continuous monitoring may be provided in a critical care or step-down unit, by telemetry on a hospital ward or by a dedicated, appropriately trained professional observer in the patient's room. Continuous monitoring should be maintained as long as patients remain at an increased risk. Intermittent pulse oximetry or continuous bedside oximetry without continuous observation does not provide the same level of safety." From: Gross JB, Bachenberg KL, Benumof JL, Caplan RA, Connis RT, Coté CJ,

Nickinovich DG, Prachand V, Ward DS, Weaver EM, Ydens L, Yu S; American Society of Anesthesiologists Task Force on Perioperative Management of Obstructive Sleep Apnea. Practice guidelines for the perioperative management of obstructive sleep apnea: A report by the American Society of Anesthesiologists Task Force on Perioperative Management of patients with obstructive sleep apnea. Anesthesiology 2006; 104:1081–93.

Single-injection Neuraxial Lipophilic Opioids (e.g., Fentanyl)

- Monitor for *a minimum* of 2 h after administration. Monitor continually (i.e., repeated regularly and frequently in steady rapid succession‡) *for the first 20 min* after administration, followed by monitoring *at least* once per hour until 2 h have passed.
- After 2 h, frequency of monitoring should be dictated by the patient's overall clinical condition and concurrent medications.

‡American Society of Anesthesiologists: Standards for basic anesthetic monitoring, Standards, Guidelines and Statements. 2010. Effective date July 1, 2011. Available at: http://www.asahq.org/files/ public/resources/standards-guidelines/standards-for-basic-anesthetic-monitoring.pdf . Accessed November 24, 2014.

Continuous Infusion or Patient-controlled Epidural Analgesia with Neuraxial Lipophilic Opioids

- Monitor during the entire time the infusion is in use.
- Monitor continually for the first 20 min after initiation, followed by monitoring *at least* once per hour until 12 h have passed.
- From 12 to 24 h, monitor *at least* once every 2 h, and after 24 h, monitor at least once every 4 h.
- After discontinuation of continuous infusion or patient-controlled epidural opioid (PCEA) with neuraxial lipophilic opioids, frequency of monitoring should be dictated by the patient's overall clinical condition and concurrent medications.

Single-injection Neuraxial Hydrophilic Opioids (e.g., Morphine, Not Including Sustained or Extended-release Epidural Morphine)

- Monitor for a *minimum* of 24 h after administration.
- Monitor *at least* once per hour for the first 12 h after administration, followed by monitoring *at least* once every 2 h for the next 12 h (i.e., from 12 to 24 h).
- After 24 h, frequency of monitoring should be dictated by the patient's overall clinical condition and concurrent medications.

Continuous Infusion or PCEA with Neuraxial Hydrophilic Opioids

- Monitor during the entire time the infusion is in use.
- Monitor *at least* once every hour for the first 12 h after initiation, followed by monitoring *at least* once every 2 h for the *next* 12 h.
- After 24 h, monitor *at least* once every 4 h.
- After discontinuation of continuous infusion or PCEA, frequency of monitoring should be dictated by the patient's overall clinical condition and concurrent medications.

Sustained or Extended-release Epidural Morphine

- Monitor *at least* once every hour during the first 12 h after administration and at least once every 2 h for the next 12 h (i.e., 12 to 24 h).
- After 24 h, monitor *at least* once every 4 h for a minimum of 48 h.

Management and Treatment of Respiratory Depression

- For patients receiving neuraxial opioids, supplemental oxygen should be available.
- Administer supplemental oxygen to patients with altered level of consciousness, respiratory depression, or hypoxemia and continue until the patient is alert and no respiratory depression or hypoxemia is present.¶
- Maintain intravenous access if recurring respiratory depression occurs.
- Reversal agents should be available for administration to all patients experiencing significant respiratory depression after neuraxial opioid administration.
    - In the presence of severe respiratory depression, initiate appropriate resuscitation.
- Noninvasive positive pressure ventilation may be considered for improving ventilatory status.
- If frequent or severe airway obstruction or hypoxemia occurs during postoperative monitoring, initiate noninvasive positive pressure ventilation.

¶ The Task Force cautions that routine use of supplemental oxygen may increase the duration of apneic episodes and may hinder detection of atelectasis, transient apnea, and hypoventilation.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Diseases or conditions requiring neuraxial opioid analgesia (epidural or spinal administration)

Guideline Category

Evaluation

Management

Prevention

Clinical Specialty

Anesthesiology

Critical Care

Nursing

Surgery

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Hospitals

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To improve patient safety and enhance the quality of anesthetic care by reducing the incidence and the severity of neuraxial opioid-related respiratory depression or hypoxemia
- To reduce the incidence and severity of adverse outcomes related to reduced respiratory rate or oxygen levels (e.g., cardiac arrest, brain damage, death)

Target Population

Patients receiving epidural or spinal opioids in inpatient (e.g., operating rooms, intensive care units, labor and delivery suites, postoperative surgical floors, hospital wards) or ambulatory (e.g., stand-alone outpatient facilities) settings

Note: These guidelines do not apply to patients with chronic or cancer pain (except those with acute postoperative pain), patients with preexisting implantable drug delivery systems, or patients with contraindications to spinal or epidural opioids (e.g., coagulopathy, sepsis).

Interventions and Practices Considered

Evaluation

1. Focused history and physical examination
2. Monitoring for adequacy of ventilation during single-injection, continuous infusion, or sustained- or extended-release administration

Management/Treatment

1. Supplemental oxygen
2. Reversal agents

Prevention of Respiratory Depression

1. Noninvasive positive-pressure ventilation
2. Drug selection
3. Dose selection
4. Route of administration

Major Outcomes Considered

- Severity of neuraxial opioid-related respiratory depression or hypoxemia
- Incidence and severity of adverse outcomes related to reduced respiratory rate or oxygen levels (e.g., cardiac arrest, brain damage, death).
- Mortality

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Evidence was obtained from two principal sources: scientific evidence and opinion-based evidence (see Appendix 2 in the original guideline document).

State of the Literature

For the literature review, potentially relevant clinical studies were identified through electronic and manual searches of the literature. The updated searches covered an 8-yr period from January 1, 2008 through July 31, 2015. New citations were reviewed and combined with pre-2008 articles used in the previous update, resulting in a total of 590 articles reviewed; 167 were found to contain direct linkage-related evidence. Search terms consisted of the interventions indicated in Appendix 2 of the original guideline document guided by the appropriate inclusion/exclusion criteria as stated in the "Focus" section in the original guideline document. Only studies containing original findings from peer-review journals were acceptable. Editorials, letters, and other articles without data were excluded. A complete bibliography used to develop these Guidelines, organized by section, is available (see the "Availability of Companion Documents" field).

Number of Source Documents

A total of 167 were found to contain direct linkage-related evidence.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Scientific Evidence

Findings from the aggregated literature are reported in the text of the guidelines by evidence category, level, and direction. Evidence categories refer specifically to the strength and quality of the *research design* of the studies. Category A evidence represents results obtained from randomized controlled trials (RCTs), and Category B evidence represents observational results obtained from nonrandomized study designs or RCTs without pertinent comparison groups. When available, Category A evidence is given precedence over Category B evidence for any particular outcome. These evidence categories are further divided into evidence levels. Evidence levels refer specifically to the strength and quality of the summarized study *findings* (i.e., statistical findings, type of data, and the number of studies reporting/replicating the findings within the two evidence categories). In this document, only the highest level of evidence is included in the summary report for each intervention–outcome pair, including a directional designation of benefit, harm, or equivocality for each outcome.

Category A

RCTs report comparative findings between clinical interventions for specified outcomes. Statistically significant ($P < 0.01$) outcomes are designated as either beneficial (B) or harmful (H) for the patient; statistically nonsignificant findings are designated as equivocal (E).

Level 1: The literature contains a sufficient number of RCTs to conduct meta-analysis‡, and meta-analytic findings from these aggregated studies are reported as evidence.

Level 2: The literature contains multiple RCTs, but the number of RCTs is not sufficient to conduct a viable meta-analysis for the purpose of these updated guidelines. Findings from these RCTs are reported separately as evidence.

Level 3: The literature contains a single RCT, and findings are reported as evidence.

Category B

Observational studies or RCTs without pertinent comparison groups may permit *inference* of beneficial or harmful relations among clinical interventions and clinical outcomes. Inferred findings are given a directional designation of beneficial (B), harmful (H), or equivocal (E). For studies that report statistical findings, the threshold for significance is a *P* value of less than 0.01.

Level 1: The literature contains observational comparisons (e.g., cohort and case-control research designs) with comparative statistics between clinical interventions for a specified clinical outcome.

Level 2: The literature contains noncomparative observational studies with associative statistics (e.g., relative risk, correlation, or sensitivity/specificity).

Level 3: The literature contains noncomparative observational studies with descriptive statistics (e.g., frequencies and percentages).

Level 4: The literature contains case reports.

Insufficient Literature

The *lack* of sufficient scientific evidence in the literature may occur when the evidence is either unavailable (i.e., no pertinent studies found) or inadequate. Inadequate literature cannot be used to assess relations among clinical interventions and outcomes because a clear interpretation of findings is not obtained due to methodological concerns (e.g., confounding of study design or implementation), or the study does not meet the criteria for content as defined in the "Focus" of the guidelines.

Opinion-based Evidence

All opinion-based evidence (e.g., survey data, Internet-based comments, letters, and editorials) relevant to each topic was considered in the development of these updated guidelines. However, only the findings obtained from formal surveys are reported in the current update. Identical surveys were distributed to expert consultants and a random sample of American Society of Anesthesiologists (ASA) members who practice obstetric anesthesia.

Category A: Expert Opinion

Survey responses from Task Force–appointed expert consultants are reported in summary form in the text, with a complete listing of the consultant survey responses reported in Appendix 2 of the original guideline document.

Category B: Membership Opinion

Survey responses from active American Society of Anesthesiologists (ASA) members are reported in summary form in the text, with a complete listing of ASA member survey responses reported in Appendix 2 of the original guideline document.

Survey responses from expert and membership sources are recorded using a 5-point scale and summarized based on median values.§

Strongly Agree: Median score of 5 (at least 50% of the responses are 5)

Agree: Median score of 4 (at least 50% of the responses are 4 or 4 and 5)

Equivocal: Median score of 3 (at least 50% of the responses are 3, or no other response category or combination of similar categories contain at least 50% of the responses)

Disagree: Median score of 2 (at least 50% of responses are 2 or 1 and 2)

Strongly Disagree: Median score of 1 (at least 50% of responses are 1)

Category C: Informal Opinion

Open-forum testimony obtained during the development of these guidelines, Internet-based comments, letters, and editorials are all informally evaluated and discussed during the formulation of guideline.

‡All meta-analyses are conducted by the ASA methodology group. Meta-analyses from other sources are reviewed but not included as evidence in this document.

§When an equal number of categorically distinct responses are obtained, the median value is determined by calculating the arithmetic mean of the two middle values. Ties are calculated by a predetermined formula.

Methods Used to Analyze the Evidence

Meta-Analysis

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Each pertinent outcome reported in a study was classified by evidence category and level, and designated as either beneficial, harmful, or equivocal. Findings were then summarized for each evidence linkage. Literature pertaining to three evidence linkages contained enough studies with well-defined experimental designs and statistical information sufficient to conduct meta-analyses (see Table 1 in the original guideline document). These linkages were as follows: (1) single-injection epidural opioids versus intramuscular opioids, (2) continuous infusion epidural (CIE) opioids versus intravenous opioid infusion, and (3) low versus high doses of single-injection epidural opioids.

General variance-based effect-size estimates or combined probability tests were obtained for continuous outcome measures, and Mantel–Haenszel odds ratios were obtained for dichotomous outcome measures. Two combined probability tests were employed as follows: (1) the Fisher combined test, producing chi-square values based on the logarithmic transformations of the reported *P* values from the independent studies and (2) the Stouffer combined test, providing weighted representation of the studies by weighting each of the standard normal deviates by the size of the sample. An odds ratio procedure based on the Mantel–Haenszel method for combining study results using 2 × 2 tables was used with outcome frequency information. An acceptable significance level was set at $P < 0.01$ (one tailed). Tests for heterogeneity of the independent studies were

conducted to assure consistency among the study results. DerSimonian–Laird random-effects odds ratios were obtained when significant heterogeneity was found ($P < 0.01$). To control for potential publishing bias, a "fail-safe n" value was calculated. No search for unpublished studies was conducted, and no reliability tests for locating research results were done. To be accepted as significant findings, Mantel–Haenszel odds ratios must agree with combined test results whenever both types of data are assessed. In the absence of Mantel–Haenszel odds ratios, findings from both the Fisher and weighted Stouffer combined tests must agree with each other to be acceptable as significant.

For the previous update, interobserver agreement among Task Force members and two methodologists was established by interrater reliability testing. Agreement levels using a κ statistic for two-rater agreement pairs were as follows: (1) type of study design, $\kappa = 0.78$ to 0.90; (2) type of analysis, $\kappa = 0.74$ to 1.00; (3) evidence linkage assignment, $\kappa = 0.79$ to 1.00; and (4) literature inclusion for database, $\kappa = 0.70$ to 1.00. Three-rater chance-corrected agreement values were as follows: (1) study design, Sav = 0.86, Var (Sav) = 0.009; (2) type of analysis, Sav = 0.82, Var (Sav) = 0.017; (3) linkage assignment, Sav = 0.85, Var (Sav) = 0.004; (4) literature database inclusion, Sav = 0.79, Var (Sav) = 0.310. These values represent moderate to high levels of agreement.

Consensus-based Evidence

Consensus was obtained from multiple sources, including (1) survey opinion from consultants who were selected based on their knowledge or expertise in neuraxial opioid administration, (2) survey opinions solicited from active members of the American Society of Anesthesiologists (ASA), (3) testimony from attendees of publicly held open forums at a national anesthesia meeting, (4) Internet commentary, and (5) Task Force opinion and interpretation. A survey was sent to the consultants and ASA members in May 2015 covering all evidence linkages. The rate of return among consultants was 35% (n = 48 of 138), and 135 surveys were received from active ASA members. Survey results are reported in Tables 2 and 3 and summarized in the text of the original guideline document.

For the previous update, the consultants were asked to indicate which, if any, of the evidence linkages would change their clinical practices if the guidelines were instituted. The rate of return was 14% (n = 17 of 123). The percent of responding consultants expecting *no change* associated with each linkage was as follows: (1) history and physical examination = 94%, (2) single-injection neuraxial opioid administration = 88%, (3) continuous epidural opioid administration = 88%, (4) extended-release epidural opioid administration = 71%, (5) monitoring for adequacy of ventilation, oxygenation, and level of consciousness = 59%, (6) supplemental oxygen administration = 88%, and (7) use of noninvasive positive pressure ventilation = 100%. Fifty-nine percent of the respondents indicated that the guidelines would have *no effect* on the amount of time spent on a typical case, and 41% indicated that there would be an increase of the amount of time spent on a typical case with the implementation of these guidelines.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Task Force Members and Consultants

In 2014, the American Society of Anesthesiologists (ASA) Committee on Standards and Practice Parameters requested that the updated guidelines published in 2009 be reevaluated. This current update consists of a literature evaluation, new surveys, and an update of the evidence-based guideline nomenclature. A summary of recommendations is found in Appendix 1 of the original guideline document.

This update was developed by an ASA-appointed Task Force of 10 members, including anesthesiologists in both private and academic practice from various geographic areas of the United States and consulting methodologists from the ASA Committee on Standards and Practice Parameters.

The Task Force developed these updated guidelines by means of a seven-step process. First, they reached consensus on the criteria for evidence. Second, original published research studies from peer-reviewed journals relevant to neuraxial opioid administration were reviewed and evaluated. Third, expert consultants were asked to (1) participate in opinion surveys on the effectiveness of various neuraxial opioid management strategies and (2) review and comment on a draft of the guidelines developed by the Task Force. Fourth, opinions about the guideline recommendations were solicited from a random sample of active members of the ASA. Fifth, the Task Force held an open forum at a major national meeting‡ to solicit input on its draft recommendations. Sixth, the consultants were surveyed to assess their opinions on the feasibility of implementing the updated guidelines. Seventh, all available information was used to build consensus within the Task Force to finalize the updated guidelines (see Appendix 1 in the original guideline document).

‡American Society of Regional Anesthesia and Pain Medicine, 40th Annual Meeting, Las Vegas, Nevada, May 15, 2015.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

The guidelines were submitted for publication October 28, 2015; accepted for publication October 28, 2015; and approved by the American Society of Anesthesiologists (ASA) House of Delegates on October 28, 2015.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

Evidence was obtained from two principal sources: scientific evidence and opinion-based evidence.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate anesthesia care for patients receiving neuraxial opioid administration. Refer to the "Literature Findings" sections in the original guideline document for potential benefits of specific interventions.

Potential Harms

Side effects of opioids, including respiratory depression, hypoxia, and sedation or somnolence

Contraindications

Contraindications

Contraindications to spinal or epidural opioids include coagulopathy and sepsis.

Qualifying Statements

Qualifying Statements

Qualifying Statements

Practice guidelines are systematically developed recommendations that assist the practitioner and patient in making decisions about health care. These recommendations may be adopted, modified, or rejected according to the clinical needs and constraints and are not intended to replace local institutional policies. In addition, practice guidelines developed by the American Society of Anesthesiologists (ASA) are not intended as standards or absolute requirements, and their use cannot guarantee any specific outcome. Practice guidelines are subject to revision as warranted by the evolution of medical knowledge, technology, and practice. They provide basic recommendations that are supported by a synthesis and analysis of the current literature, expert and practitioner opinion, open-forum commentary, and clinical feasibility data.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Safety

Timeliness

Identifying Information and Availability

Bibliographic Source(s)

Practice guidelines for the prevention, detection, and management of respiratory depression associated with neuraxial opioid administration: an updated report by the American Society of Anesthesiologists Task Force on Neuraxial Opioids and the American Society of Regional Anesthesia and Pain Medicine. Anesthesiology. 2016 Mar;124(3):535-52. [84 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2016 Mar

Guideline Developer(s)

American Society of Anesthesiologists - Medical Specialty Society

American Society of Regional Anesthesia and Pain Medicine - Medical Specialty Society

Source(s) of Funding

Support was provided solely from institutional and/or departmental sources.

Guideline Committee

Committee on Standards and Practice Parameters

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

The authors declare no competing interests.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American Society of Anesthesiologists Task Force on Neuraxial Opioids, Horlocker TT, Burton AW, Connis RT, Hughes SC, Nickinovich DG, Palmer CM, Pollock JE, Rathmell JP, Rosenquist RW, Swisher JL, Wu CL. Practice guidelines for the prevention, detection, and management of respiratory depression associated with neuraxial opioid administration. An updated report by the American Society of Anesthesiologists Task Force on Neuraxial Opioids. Anesthesiology. 2009 Feb;110(2):218-30. [159 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available from the American Society of Anesthesiologists Web site .

Availability of Companion Documents

The following is available:

- Practice guidelines for the prevention, detection, and management of respiratory depression associated with neuraxial opioid administration: an updated report by the American Society of Anesthesiologists Task Force on Neuraxial Opioids and the American Society of Regional Anesthesia and Pain Medicine. Bibliography. 2016. 11 p. Available from the Anesthesiology Journal Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on May 11, 2010. The information was verified by the guideline developer on June 24, 2010. This summary was updated by ECRI Institute on May 10, 2016.

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